

Introduction

What is Mobile Computing?

What is computing?

- The capability to automatically carry out certain processing related to service invocations on a remote computer .

What is the mobility ?

- The capability to change location while communicating to invoke computing service at some remote computers.

What is mobile computing?

- Ability to compute remotely while on the move. It is possible to access information from anywhere and at anytime.

- **Mobile Computing** is an umbrella term used to describe technologies that enable people to access network services anyplace, anytime, and anywhere with portable and wireless computing and communication devices.

Mobile computing vs Wireless networking

- Mobile computing denotes accessing information and remote computational services while on the move , Wireless networking provides basic communication infrastructure to make this possible.
- Mobile computing is based on wireless networking and helps to invoke computing services on remote servers while on the move.

Mobile computing vs Wireless networking

- So Wireless networking is one of the important and necessary ingredient of mobile computing.
- Mobile computing also requires the applications themselves – their design and development, the hardware at the client and server sides.

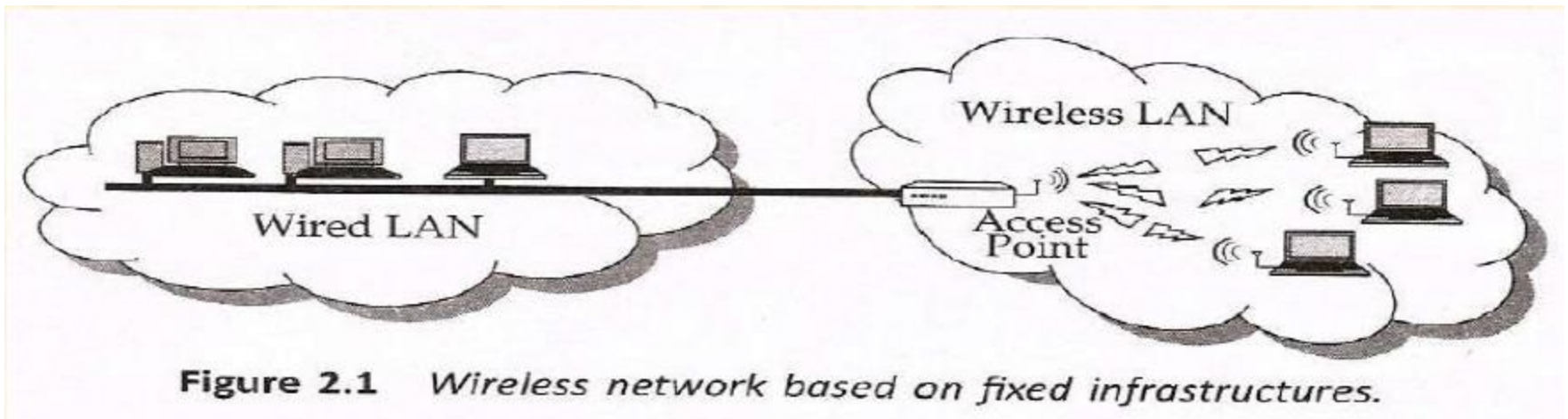
Classification of Wireless networks

Wireless networks can be classified into basic types

- **1) Based on Fixed Infrastructure network** -
One is extension of wired networks. It uses fixed infrastructure such as base station to provide single hop wireless communication with wired network as shown in figure 2.1.

Classification of Wireless networks

Based on Fixed Infrastructure network



Based on Fixed Infrastructure network

- It uses the fixed Infrastructure.
- Simply the extension of wired network.
- Single Hop Communication or Two Hop Communication.
- Wireless Lan (WLAN) based on IEEE 802.11 protocol.
- Access point (AP) provides last hop connectivity of mobile nodes to wired network.
- All communication through AP which may require authentication of stations connecting to network.
- Expertise in setting up is not required.

Classification of Wireless networks

- **2) Ad Hoc network:** It does not use any fixed infrastructure and is based on multi-hop wireless communication as shown in figure 2.2

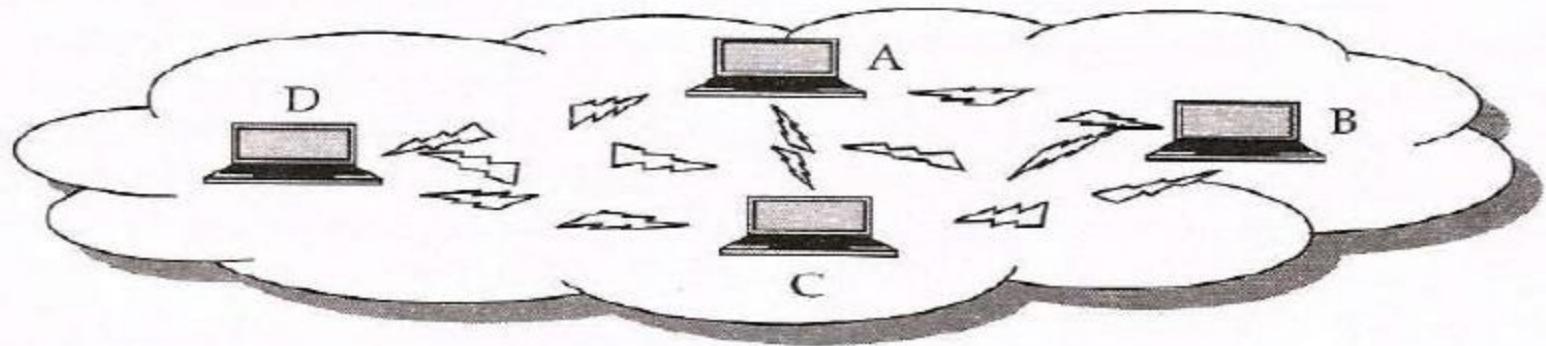


Figure 2.2 *Wireless network having no fixed infrastructures.*

Classification of Wireless networks

- **2) Wireless network having no Fixed Infrastructure network:**
 - It is also called as Ad-hoc Networks.
 - Data channels through multiple hops.
 - Stable Infrastructure is not necessary.
 - PAN (Personal Area Network - Created by Bluetooth Devices) are best examples.
 - It may require expert knowledge and less reliable than Infrastructure based wireless networks.

Applications of Mobile Computing

- Stock Information Collection/Control
- Emergency services
- For Estate Agents
- In courts
- In companies
- Credit Card Verification
- Taxi/Truck Dispatch
- Electronic Mail/Paging